

## **Deepwater Horizon/Mississippi Canyon 252 Spill**

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As agreed upon by the Trustees and BP, all samples collected for contaminant analysis during the sampling plan described below will be sent to Alpha Analytical Laboratory, unless they are designated to be archived. Samples for other analyses, if not archived, will be sent to the laboratories indicated in the plan below.

Each laboratory shall simultaneously deliver raw data, including all necessary metadata, generated as part of this work plan as a Laboratory Analytical Data Package (LADP) to the trustee Data Management Team (DMT), the Louisiana Oil Spill Coordinator's Office (LOSCO) on behalf of the State of Louisiana and to BP (or ENTRIX on behalf of BP). The electronic data deliverable (EDD) spreadsheet with pre-validated analytical results, which is a component of the complete LADP, will also be delivered to the secure FTP drop box maintained by the trustees' Data Management Team (DMT). Any preliminary data distributed to the DMT shall also be distributed to LOSCO and to BP (or ENTRIX on behalf of BP). Thereafter, the DMT will validate and perform quality assurance/quality control (QA/QC) procedures on the LADP consistent with the authorized Quality Assurance Project Plan, after which time the validated/QA/QC-ed data shall be made available simultaneously to all trustees and BP (or ENTRIX on behalf of BP). Any questions raised on the validated/QA/QC results shall be handled per the procedures in the Quality Assurance Project Plan and the issue and results shall be distributed to all parties. In the interest of maintaining one consistent data set for use by all parties, only the validated/QA/QC-ed data set released by the DMT shall be considered the consensus data set. In order to assure reliability of the consensus data and full review by the parties, no party shall publish consensus data until 7 days after such data has been made available to the parties. Also, the LADP shall not be released by the DMT, LOSCO, BP or ENTRIX prior to validation/QA/QC absent a showing of critical operational need. Should any party show a critical operational need for data prior to validation/QA/QC, any released data will be clearly marked "preliminary/un-validated" and will be made available equally to all trustees and to BP (or ENTRIX on behalf of BP).

All materials associated with the collection or analysis of samples under these protocols or pursuant to any approved work plan, except those consumed as a consequence of the applicable sampling or analytical process, must be retained unless and until approval is given for their disposal in accordance with the retention requirements set forth in paragraph 14 of Pretrial Order # 1 (issued August 10, 2010) and any other applicable Court Orders governing tangible items that are or may be issued in MDL No. 2179 IN RE: Oil Spill by the Oil Rig "DEEPWATER HORIZON" (E.D. LA 2010). Such approval to dispose must be given in writing and by a person authorized to direct such action on behalf of the state or federal agency whose employees or contractors are in possession or control of such materials.

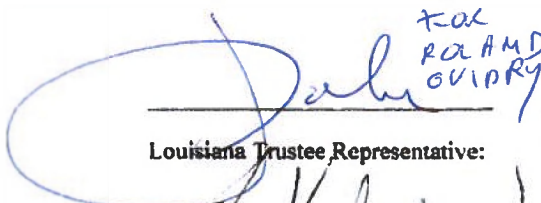
This plan will be implemented consistent with existing trustee regulations and policies. All applicable state and federal permits must be obtained prior to conducting work.

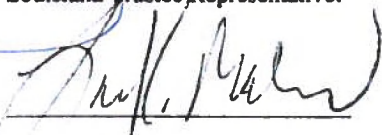
Mississippi Canyon 252 Spill  
Oyster Sampling Transition Plan-Amendment 1

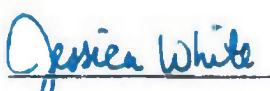
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Approval of this work plan is for the purposes of obtaining data for the Natural Resource Damage Assessment (NRDA). Parties each reserve its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan.

**APPROVED:**

 <sup>for  
RA AND  
OVIARY</sup> 7/29/11  
Louisiana Trustee Representative: Date

 July 15, 2011  
BP Representative: Date

 7/7/2011  
NOAA Trustee Representative Date  
(on behalf of all other trustees)

# **Mississippi Canyon 252 Spill**

## **Oyster Sampling Transition Plan-Amendment 1**

May 5, 2011

### **Introduction and Summary**

This document (Amendment 1) amends the initial Oyster Sampling Transition Plan (Transition Plan) covering sampling efforts from October 2010 to April 2011. Amendment 1 updates three sections of the Transition Plan: the Estimated Samples from This Activity section, the Site Selection section, and the Cost Estimate section. These are updated to reflect the addition of 20 supplemental sites based on a review of available exposure data as described below. The potential for supplementation of sample sites to improve coverage of a range of exposed areas is discussed in the original Transition Plan. This Amendment describes the location of the supplemental sites and provides justification for the selection of those sites. Additionally, the Amendment clarifies procedures for addressing sample sites found during reconnaissance to be devoid of oyster reef substrate and provides updated cost estimates for certain laboratory analyses. Finally, this Amendment includes updated observation forms that have been revised since finalizing the Transition Plan.

### **Estimated samples from this activity:**

The text in this section and Table 2 of this Amendment updates the corresponding information in the Transition Plan as follows:

- 90 dredge surveys (one set of three replicates per site);
- 95 sets of sediment samples (two composites per site; 190 samples total)<sup>1</sup>;
- 90 composite oyster tissue samples (one per site, up to 6 market-sized oysters analyzed (or equivalent) per sample);
- 90 oyster gonad/disease/condition samples (one per site, up to 15 market-sized oysters analyzed per sample);
- 70 sets of larval samples (three sampling events by year end 2010; 210 samples total); and
- 70 sets of recruitment samples (two sampling events by year end 2010; 140 samples total).

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<sup>1</sup> Please see the section of this Amendment addressing mapped sites with zero resource for an explanation of the estimated five additional sites for which sediment samples will be collected as part of the transition plan.

## Site Selection

The following text and figures are added to the end of the Site Selection section of the Transition Plan:

In addition to the original set of 70 sites, a total of 20 supplemental sites in Louisiana have been added for sampling. These supplemental sites fall into two categories. The first category supplements the original sample sites with 10 additional sites from the generalized random tessellation stratified (GRTS) list of sites with cumulative surface oil index values greater than 0.04. The cumulative surface oil index is an exposure metric described below.<sup>2</sup> The second category includes 10 additional sites with the highest observed cumulative surface oil index values. Both categories of supplemental sites and the rationale for including them are described below.

### *GRTS-based Supplemental Sites*

Oil exposure in the Transition Plan sample of sites was characterized using data on the frequency of observed MC252 surface oiling following the Deepwater Horizon spill. Currently, the most complete exposure metric available to assess the extent of oiling at potential oyster sites across the study area is the cumulative surface oiling index developed by WEST, Inc. using satellite and radar imagery for the period from April 22, 2010 to August 1, 2010. This metric is calculated for 200-meter square grid cells across the study area and indicates for each cell the proportion of days surveyed that a given cell was observed to have surface oiling. The mean cumulative surface oil index for each 600 meter oyster sampling site in the oyster site sample frame was calculated as the mean of the nine 200 meter cells that fell within each 600 meter site. The mean cumulative surface oil index thus represents the mean proportion of days a site was observed with surface oil. A comparison by WEST, Inc. of the distribution of all 3,688 potential sites (the sample frame) with the distribution of the randomly chosen sample of 60 Transition sites in Louisiana indicated a lack of samples in the mid-range of the cumulative surface oil index. Potential sites in this mid-range are represented in the overall sample frame. Figure 8 provides histograms for all potential sites in the Transition Plan sampling frame (i.e., stratum encompassing known oyster reef), the original Transition Plan sample sites selected in Louisiana, the original Transition Plan sample sites in Louisiana plus the first set of 10 supplemental sites, and the original Transition Plan sample sites in

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<sup>2</sup> For information regarding the GRTS sampling procedure see:

McDonald, T. 2004. GRTS for the Average Joe: A GRTS Sampler for Windows. <http://www.west-inc.com>.

Stevens, D. L. and Olsen, A. R. 1999. Spatially restricted surveys over time for aquatic resources. *Journal of Agricultural, Biological, and Environmental Statistics*. 4:415-428.

Stevens, D. L. and A. R. Olsen. 2004. Spatially balanced sampling of natural resources. *Journal of the American Statistical Association*. 99:262-278.

Louisiana plus all 20 supplemental sites. Additional sites are desired as part of the Transition Plan to achieve a broader distribution of sites with respect to cumulative surface oiling.

Cumulative surface oiling is just one potential measure of exposure of oyster habitat to MC252 oil. Other exposure measures may be added as additional exposure data become available. However, the use of the cumulative surface oil index provides an opportunity to improve the sample of sites with respect to this exposure measure and to collect samples from these sites during the current sampling effort. Therefore, this Amendment supplements the Louisiana sample with 10 additional GRTS sites that will provide a continuum of sites across the cumulative surface oiling distribution in the study area.

The GRTS-based supplemental sites are shown in green on the maps in Figures 9 and 10, and labeled Supplemental Cumulative Surface Oil Index Sites. Sample sites selected as part of this additional site selection procedure provide a valid probabilistic sample from the respective oiling strata (sites with cumulative surface oil index values greater than 0.04). These sites may be used in generating any models and in making statistical inferences. As shown in these maps, five of the supplemental sites are located in freshwater diversion areas and five are in areas not affected by the diversions. Historically, freshwater diversion areas (Figure 11) are areas under the influence of freshwater due to managed diversions of freshwater by Louisiana to meet salinity targets for fisheries and to maintain vegetation health. Following the MC 252 spill, freshwater diversions were employed for an extended period of time in an attempt to keep oil out of the marshes. Because of the geographic extent of observed surface oiling, the five supplemental sites in freshwater diversion areas all correspond to higher oiling index values than those outside of freshwater diversion areas. With the supplemental sites included, the distribution of sites in the expanded sample better captures the range of all potential sites with respect to cumulative surface oiling (as shown in Figure 8).

Histograms are provided separately for sites within and outside of freshwater diversion areas in Figures 12 and 13, respectively, to show how the addition of these supplemental sites improves the distribution of sites with respect to cumulative surface oiling in areas potentially influenced by freshwater diversions in Louisiana.

### *Highest Surface Oil Index Supplemental Sites*

The original 60 Louisiana sites in combination with the first 10 supplemental sites include only a small number of sites with the highest cumulative surface oil index values observed in the sample frame. To allow for an expanded evaluation of sites with the highest frequency of surface oiling observed in our sample frame, 10 additional supplemental sites with highest cumulative surface oiling index values were added to the Transition Plan. Five sites each were selected in freshwater diversion areas and in areas not affected by freshwater diversions. The supplemental highest surface oiling index sites are shown in red on the maps in Figures 9 and 10.

### Revision of Site Selection Procedures to Address Mapped Sites with Zero Oyster Resource

This Amendment also adds the following section to the Transition Plan:

Oyster distribution is often patchy. State biologists have undertaken efforts to map reefs on public grounds; however, consolidated reefs are a rarity. In addition, oyster reefs within leased areas are dependent on active cultivation by the lease holder. It is therefore possible that zero oyster resources (i.e., no Tier III substrate found per the mapping SOP) will be identified for a given site through the Transition Plan's mapping effort. In this situation, the site will not be dredged for oysters. Instead, an additional site will be selected from the sample frame that meets the selection criteria of the original site. For example, in Louisiana if one of the GRTS-based supplemental sites selected based on a cumulative surface oil index greater than 0.04 in a freshwater diversion area is mapped with zero resource, then the replacement site will be the next site on the GRTS list of sites characterized by a cumulative surface oil index greater than 0.04 in a fresh water diversion area. In Mississippi, if one of the originally selected 10 sites from the GRTS sample (i.e. the first 10 sites on the GRTS list) is found to have zero oyster resource following mapping, then the replacement site will be the next Mississippi site on the GRTS list of sites (i.e. the eleventh site). As such, sediment sampling at 5 replacement sites in MS is included as part of this Amendment. This adaptive sampling is necessary to ensure that enough sites with resources are sampled in the supplemental site areas and in Mississippi, which has a smaller overall sample sizes.

If a site mapped with zero resource was previously sampled for recruitment (deployment and retrieval of settlement plates and/or larval sampling) then sediment samples will be taken for these sites using the Transition Plan SOP for sediments. Sites mapped with zero oyster resource that were not previously sampled for larvae will not have any additional samples taken and neither will any replacement sites mapped with zero oyster resources; these sites will be recorded as having zero resource in the results of the Transition Plan. Replacement sites with mapped oyster resources will undergo further sampling in the form of dredging for oysters and collection of sediment samples per the Transition Plan SOPs. It should be noted in these instances, the original site may have been sampled for larval abundance and settlement and not adult oysters, and the corresponding replacement site would be sampled for adult oysters but not larvae under the Transition Plan. Potential replacement sites are indicated in Figures 9 and 10.

### Cost Estimate

The text in the Cost Estimate section and Table 3 of the Transition Plan are updated as follows:

The total cost associated with this level of field effort is \$742,258, including the Transition Plan and this Amendment. Analytical costs for samples collected as part of this plan could add up to another \$468,750, including up to \$285,000 to analyze sediment samples for contaminant concentrations, up to \$22,500 for gonad/disease samples<sup>3</sup>, and up to \$161,250 for analysis of all other samples (tissue contaminants and larvae samples), bringing the total cost of the study to \$1,211,008.

The incremental costs of this Amendment are \$302,341, assuming all samples are analyzed.<sup>4</sup> For additional detail concerning the cost estimate, please consult Table 3. This cost estimate is based on the following assumptions:

- Up to forty additional sites in Louisiana will need to be mapped to obtain 20 supplemental sites with oyster resource that meet the surface oiling and fresh water diversion criteria laid out in this Amendment.
- Up to 5 additional sites in Mississippi will need to be mapped to obtain a sufficient sample of sites with oyster resource to sample.
- The 20 additional sites in Louisiana will add 20 tissue and 40 sediment samples to the plan.
- An estimated 5 additional sites in Mississippi to replace sites with no mapped resource will add 10 sediment samples to the plan.,

The Parties acknowledge that this budget is an estimate, and that actual costs may prove to be higher due to a number of potential factors. BP's commitment to fund the costs of this work includes any additional reasonable costs within the scope of this work plan that may arise because of any contingencies. The trustees will make a good faith effort to notify BP in advance of any such contingencies.

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<sup>3</sup> In addition to the incremental costs of adding supplemental sites, this Amendment corrects an error in the previous cost estimate regarding the gonad/disease analysis costs. It also includes an updated estimate of the staffing needs for settlement plate analysis. In combination, these adjustments add another \$38,400 to the cost estimate.

<sup>4</sup> The incremental cost estimate includes the increased amount due to the revised estimate for gonad/disease analysis, as discussed above. It also includes an updated estimate of the staffing needs for settlement plate analysis.

**Table 2: Estimated Sampling Activity for Transition Plan**

Metric	Method	N = Sample Sizes (Potential # of sites)				Estimated subsamples per site	Estimated subsamples per event	Freq. of sampling	Estimated Total # of subsamples
		LA	MS	FL	AL				
Site Mapping and Initial Visit	Poling	100	15	0	0	1	NA	1	NA
Oyster Larvae	Water sample	60	10	0	0	5	350	3	1,050
Oyster Settlement	Settlement plate	60	10	0	0	3 plates	210	2	420
Oyster Gonadal, Condition and Disease	Oysters	80	10	0	0	10-15 oysters	900-1,350	1	900-1,350 oysters
Tissue contaminant analysis	Oysters	80	10	0	0	6 oysters (1 composite)	540 – 900 oysters (90 composites)	1	540 - 900 oysters (90 composites)
Sediment Contaminant analysis	Sediment	80	15	0	0	2 composites per grid cell	190	1	190



**Table 3. Costs for Oyster Sampling Transition Plan.**

Item	Unit cost	Units	Units	Costs (per event)	# of events	Total cost
<b>FIELD SAMPLING/PROCESSING</b>						
<b>Larval/Settlement Plate</b>						
<b>Sampling</b>				\$59,500	3	\$178,500
Personnel				\$33,600		\$100,800
Boat charges				\$22,400		\$67,200
Supplies				\$3,500		\$10,500
<b>Mapping</b>				\$244,375	1	\$244,375
Personnel				\$138,000		\$138,000
Boat charges				\$92,000		\$92,000
Supplies				\$14,375		\$14,375
<b>Dredging</b>				\$76,500	1	\$76,500
Personnel				\$43,200		\$43,200
Boat charges				\$28,800		\$28,800
Supplies				\$4,500		\$4,500
<b>Sediment Sampling</b>				\$134,583	1	\$134,583
Personnel				\$76,000		\$76,000
Boat charges				\$50,667		\$50,667
Supplies				\$7,917		\$7,917
<b>Larval/Settlement Plate</b>						
<b>Processing</b>				\$17,500	3	\$52,500
Personnel				\$14,000		\$42,000
Supplies				\$1,750		\$5,250
Shipping and archive charges				\$1,750		\$5,250
<b>Sediment Processing</b>				\$1,900	1	\$1,900
Supplies				\$950		\$950
Shipping and archive charges				\$950		\$950
<b>Dredge Processing</b>				\$45,900	1	\$45,900
Personnel				\$43,200		\$43,200
Supplies				\$1,350		\$1,350
Shipping and archive charges				\$1,350		\$1,350
<b>Cooler Rental</b>	\$8,000					\$8,000
<b>Field Sampling/Processing Total</b>						<b>\$742,258</b>
<b>LABORATORY ANALYSIS</b>						
Sediment Contaminants	\$1,500	sample	190	\$285,000	1	\$285,000
Oyster Contaminant	\$1,500	sample	90	\$135,000	1	\$135,000
Disease and Gonad	\$250	sample	90	\$22,500	1	\$22,500
DNA PCR	\$25	sample	350	\$8,750	3	\$26,250
<b>Laboratory Total</b>						<b>\$468,750</b>
<b>TOTAL</b>						<b>\$1,211,008</b>
<b>TOTAL FOR AMENDMENT</b>						
<b>(including analytical costs)</b>						<b>\$302,341</b>

**Figure 8. Distribution of sites relative to the mean cumulative surface oil index.** The histograms illustrate the distribution of sites with non-zero mean cumulative surface oil index values only. The 10 supplemental sites include the next 5 sites each in both fresh water diversion and non-fresh diversion areas on the GRTS site list with mean cumulative surface oil index values of greater than 0.04. The 20 supplemental sites include the first 10 supplemental sites with the addition of 5 sites each in both fresh water diversion and non-fresh diversion areas with highest mean cumulative surface oil index values.

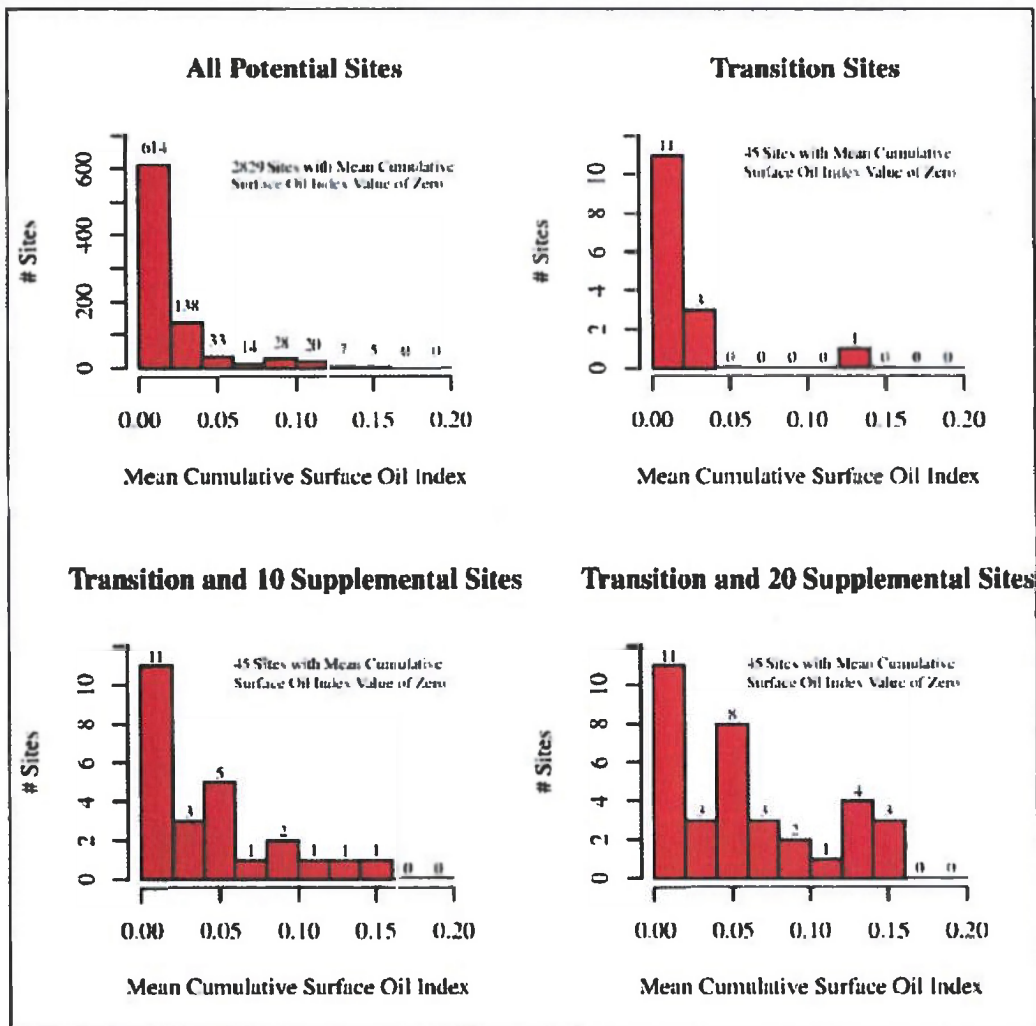


Figure 9. Map of CSA 1 North Proposed Supplemental Transition Plan Sites

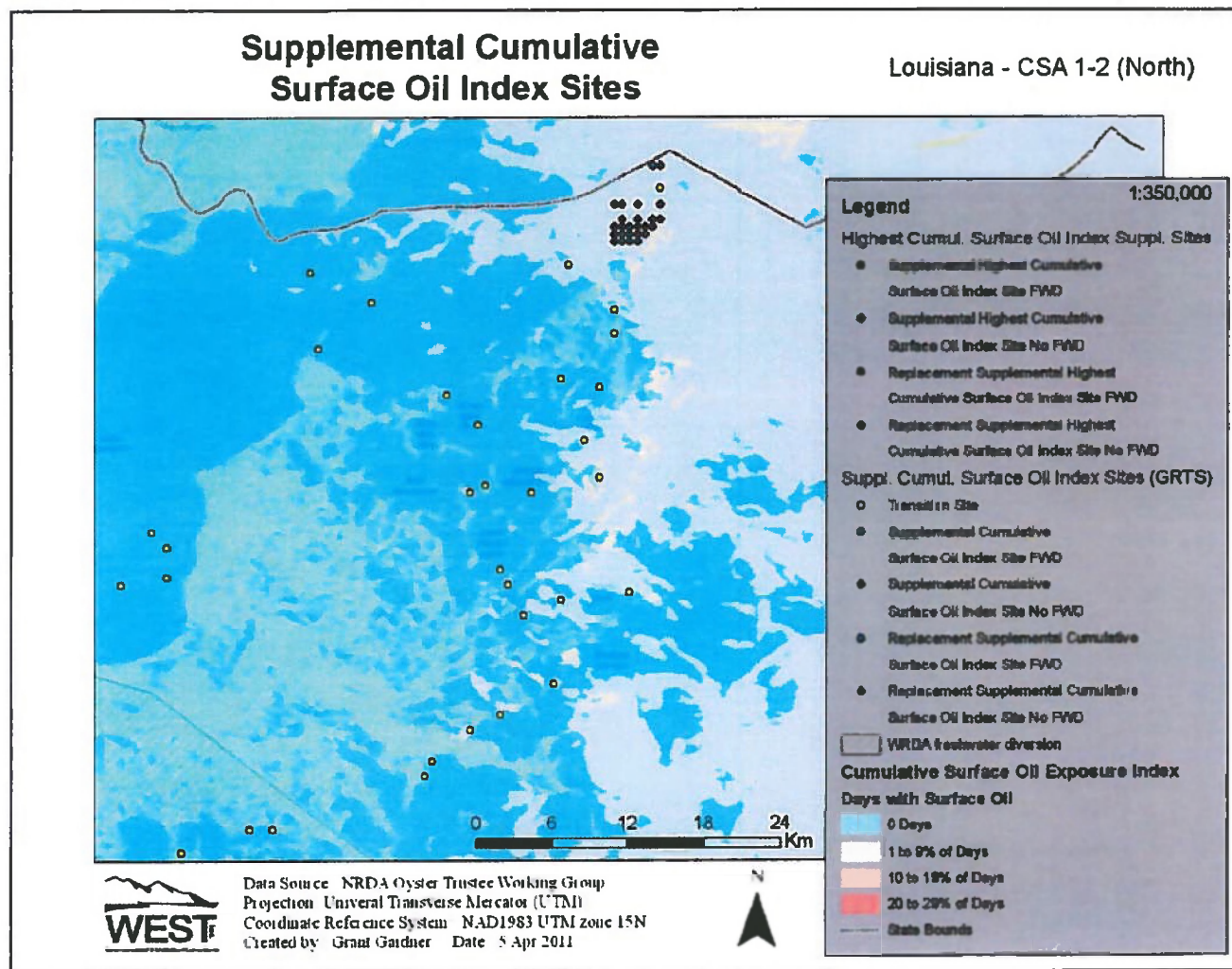


Figure 10. Map of CSA 3 Proposed Supplemental Transition Plan Sites

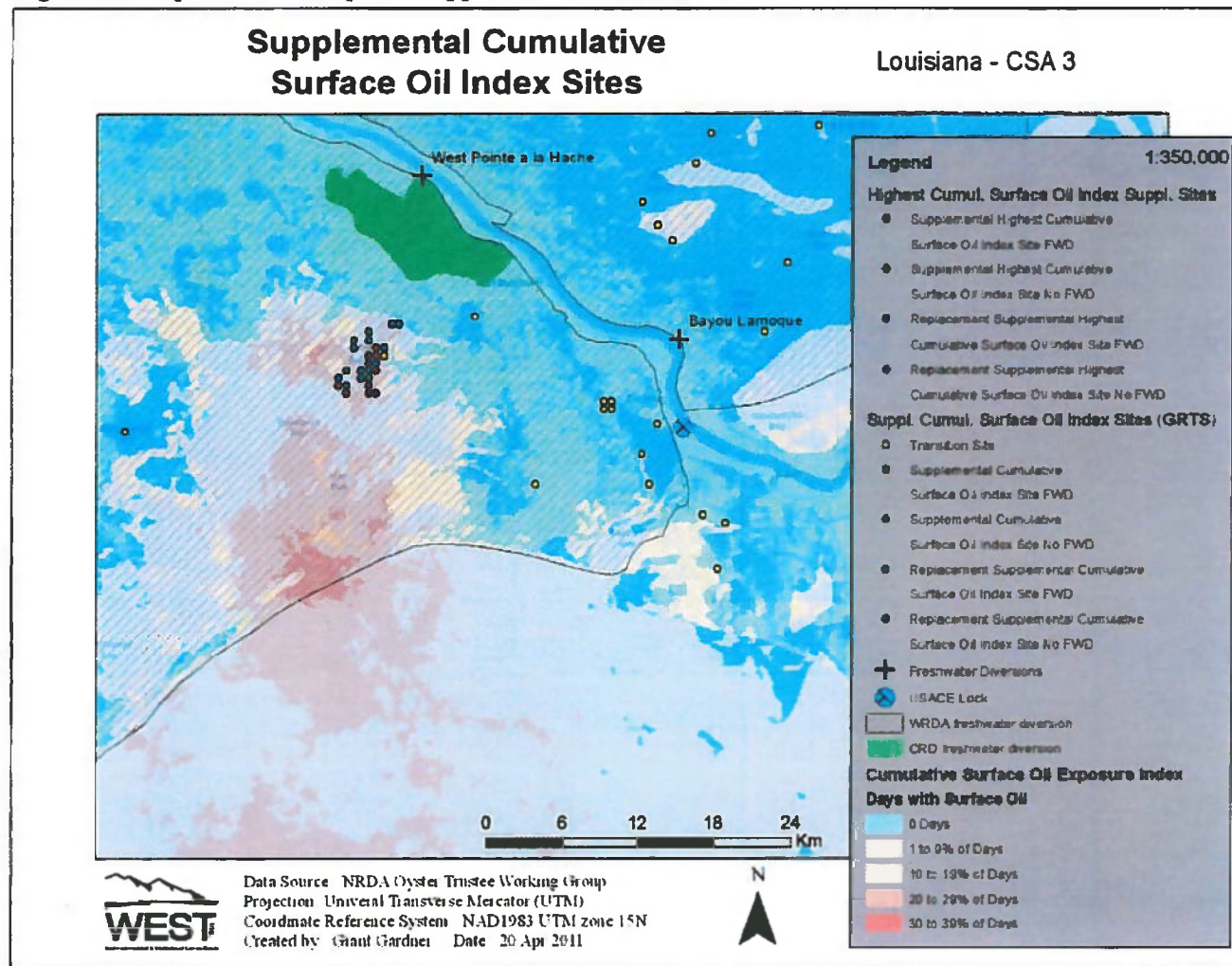
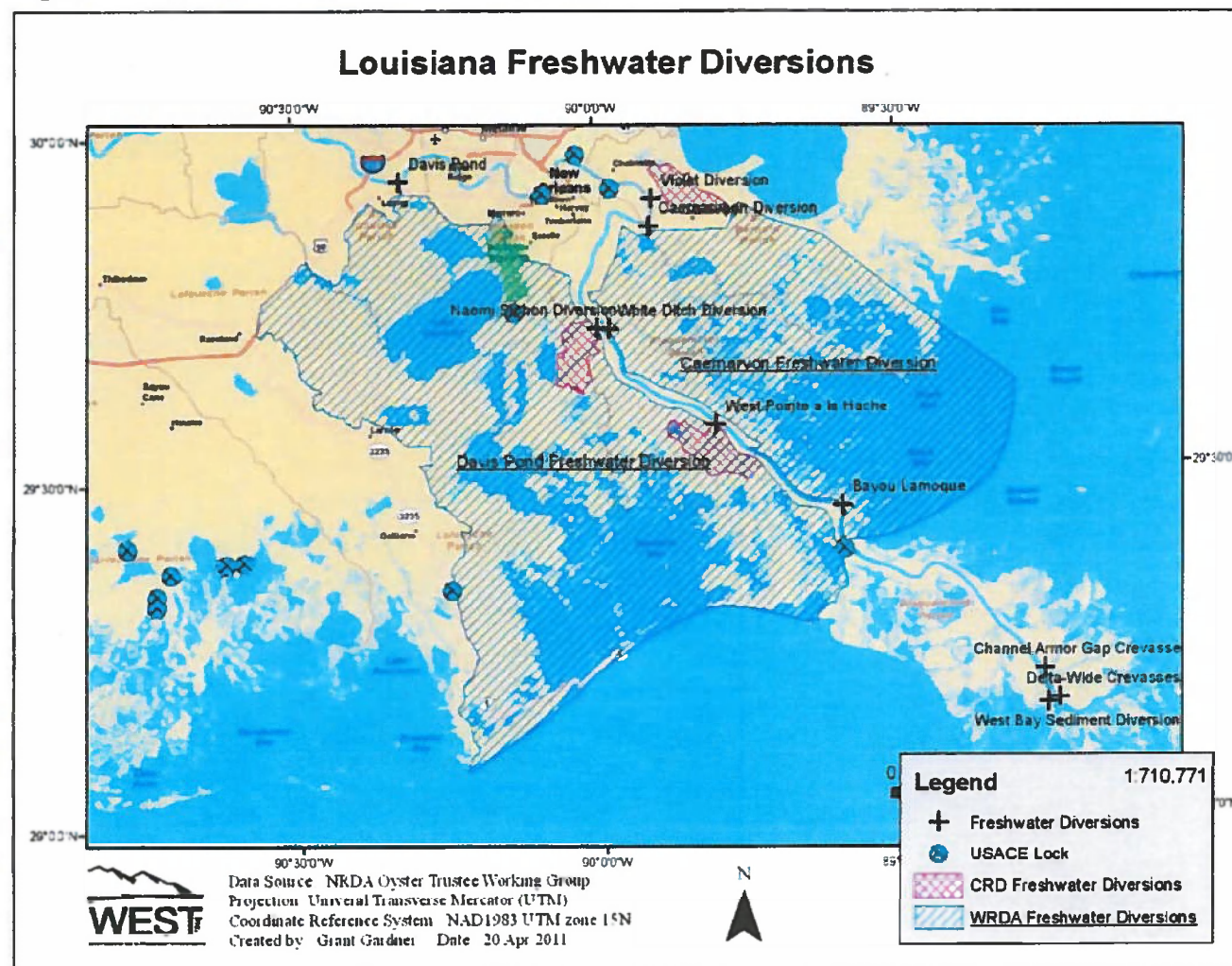
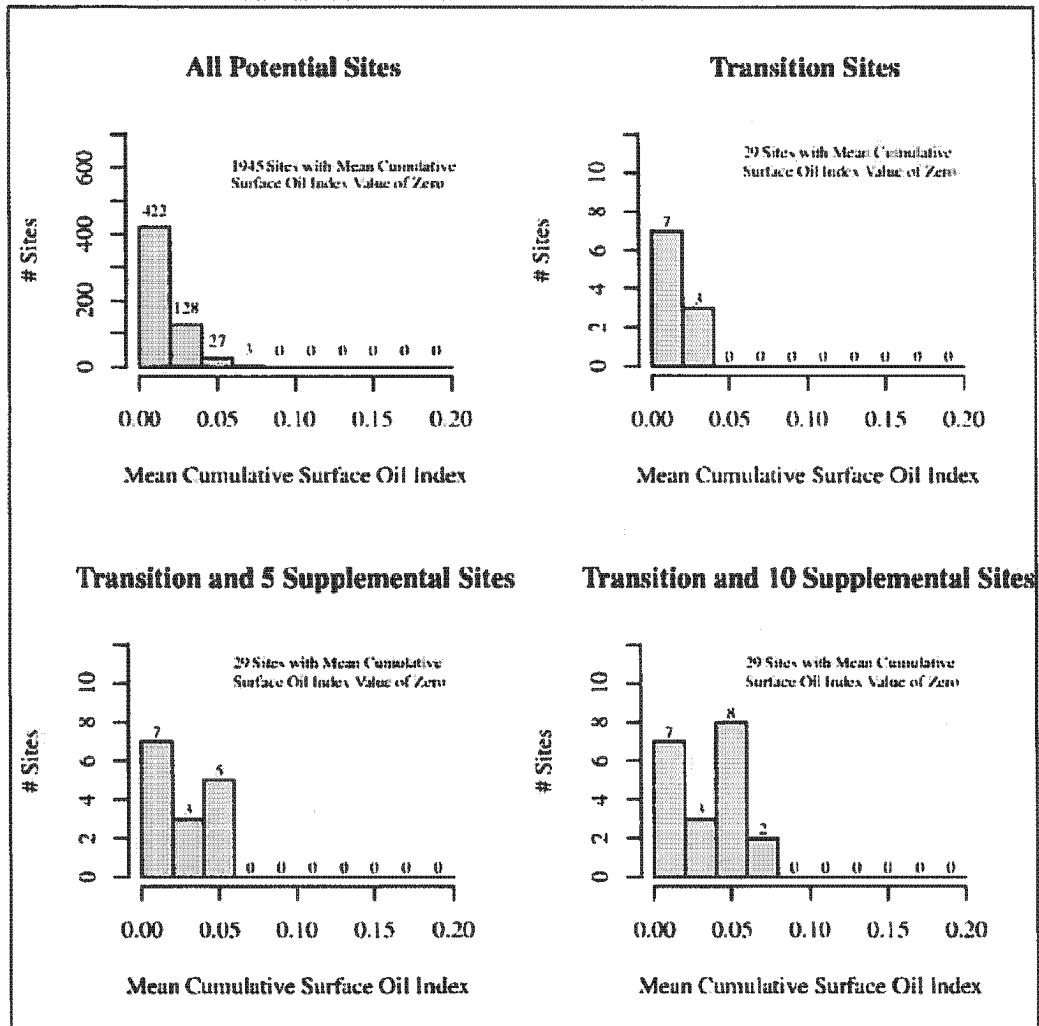




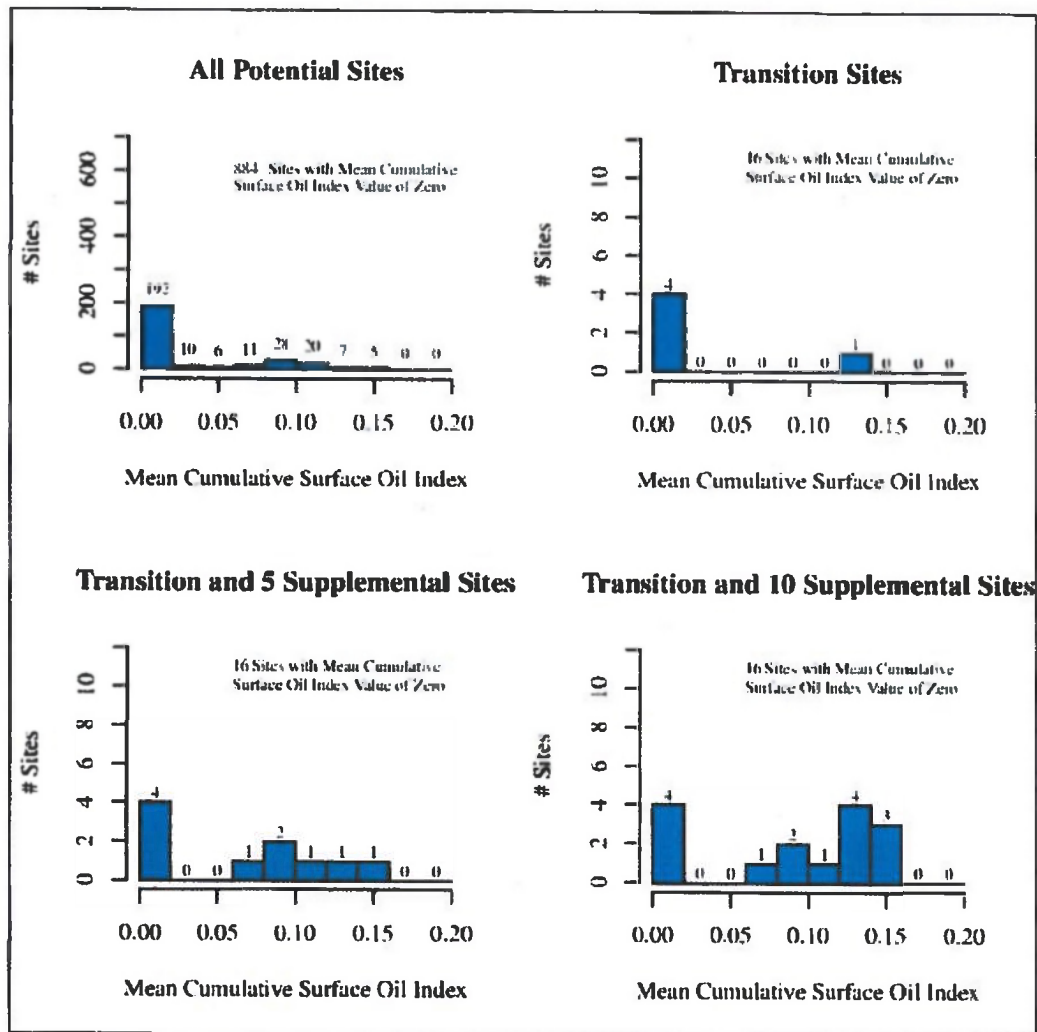
Figure 11. Freshwater diversion areas in Louisiana.



**Figure 12. Distribution of sites not in freshwater diversion areas relative to the mean cumulative surface oil index.** The histograms illustrate the distribution of sites with non-zero mean cumulative surface oil index values only. The 5 supplemental sites include the next 5 on the GRTS site list with mean cumulative surface oil index values of greater than 0.04 not in fresh water diversion areas. The 10 supplemental sites include the first 5 supplemental sites with the addition of 5 sites with highest mean cumulative surface oil index values not in fresh water diversion areas.



**Figure 13. Distribution of sites in freshwater diversion areas relative to the mean cumulative surface oil index.** The histograms illustrate the distribution of sites with non-zero mean cumulative surface oil index values only. The 5 supplemental sites include the next 5 on the GRTS site list with mean cumulative surface oil index values of greater than 0.04 in fresh water diversion areas. The 10 supplemental sites include the first 5 supplemental sites with the addition of 5 sites with highest mean cumulative surface oil index values in fresh water diversion areas.



## **APPENDIX 1. Revised Field and Lab Observation Forms**

1. NRDA Oyster Site Form – Dredge Sampling (Version 3)
2. NRDA Oyster Intake Lab Form – Dredge Enumeration and Sample Generation (Version 2)



Team Leader Code: \_\_\_\_\_

Survey Team ID: \_\_\_\_\_

## OYSTER TRANSITION PLAN

### NRDA Oyster Site Form – Dredge Sampling (Version 3)

One form should be used for each assigned site.

#### 1. Site Descriptors

Site Name \_\_\_\_\_ Cell Number \_\_\_\_\_

Time: \_\_\_\_\_ Date: \_\_\_\_\_

Habitat Setting (check one): ☐ Intertidal ☐ Subtidal (Depth(m): \_\_\_\_\_)

Overall Reef condition: \_\_\_\_\_

#### 2. Physical/Chemical Parameters

Air Temperature(°C): \_\_\_\_\_

Surface Temperature (°C): \_\_\_\_\_

Surface Dissolved Oxygen (%): \_\_\_\_\_

Surface D.O. (mg/L): \_\_\_\_\_

Surface Salinity (ppt): \_\_\_\_\_

Bottom Temperature (°C) \_\_\_\_\_

Bottom Dissolved Oxygen (%): \_\_\_\_\_

Bottom D.O. (mg/L): \_\_\_\_\_

Bottom Salinity (ppt): \_\_\_\_\_

Weather Conditions \_\_\_\_\_

Oiled Condition (check one): ☐ none ☐ Sheen ☐ Scattered Deposits

☐ Surface substantially covered ☐ Surface completely covered ☐ Deep Deposits

#### 3. Dredge Sampling:

*NOTE: If one of the four primary oyster species is sampled, Dredge Sampling is not required. However, if multiple species are sampled, Dredge Sampling is required. The user should create a separate copy of this form for each dredge. If there is a problem with the dredge, please record this in the report below and provide a sample copy to the nearest Dade County office.*

##### Dredge 1

SAMPLE ID: \_\_\_\_\_

Start of Dredge 1 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 1 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The YSI instrument should be calibrated every day using the conductivity calibration solution provided by Dade Moeller at intake. Calibrate the dissolved oxygen sensor daily with water-saturated air, and replace with new D.O. membranes as necessary. The User Manual advises that the membrane cap be changed every 60 days during regular use. Record daily calibrations in the field log book.

Version 3  
2/15/2011

**Dredge 2**

SAMPLE ID: \_\_\_\_\_

Start of Dredge 2 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 2 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :  
\_\_\_\_\_  
\_\_\_\_\_**Dredge 3**

SAMPLE ID: \_\_\_\_\_

Start of Dredge 3 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 3 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :  
\_\_\_\_\_  
\_\_\_\_\_**4. Additional Dredges:**

NOTE: In addition to the three required dredges, pull and bag additional dredges until the required volume of oysters (over 20 market-sized oysters or the equivalent in seed sized oysters) is collected or two hours have passed. If market-sized oysters are not available, the equivalent wet weight from seed-sized oysters can be used for contentment analysis. The ratio of seed to market-sized oysters is 1:5:1. Remove mud and sediment and then bag all remaining material from each dredge.

**Dredge 4 (If necessary)**

SAMPLE ID: \_\_\_\_\_

Start of Dredge 4 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 4 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :  
\_\_\_\_\_  
\_\_\_\_\_Version 3  
2/15/2011

*Dredge 5 (If necessary)*

SAMPLE ID: \_\_\_\_\_

Start of Dredge 5 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 5= Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :

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*Dredge 6 (If necessary)*

SAMPLE ID: \_\_\_\_\_

Start of Dredge 6 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 6= Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :

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*Dredge 7 (If necessary)*

SAMPLE ID: \_\_\_\_\_

Start of Dredge 7 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 7= Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :

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*Dredge 8 (If necessary)*

SAMPLE ID: \_\_\_\_\_

Start of Dredge 8 = Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

End of Dredge 8= Lat \_\_\_\_\_ Long \_\_\_\_\_ Time: \_\_\_\_\_ Waypoint: \_\_\_\_\_

Length of Dredge Pull (Minutes, seconds): \_\_\_\_\_

Notes regarding resource :

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Version 3  
2/15/2011

**5. Sediment Samples**

**#1 - Sample ID:** \_\_\_\_\_ **Waypoint:** \_\_\_\_\_

**#2 - Sample ID:** \_\_\_\_\_ **Waypoint:** \_\_\_\_\_

**#3 - Sample ID:** \_\_\_\_\_ **Waypoint:** \_\_\_\_\_

**#4 - Sample ID:** \_\_\_\_\_ **Waypoint:** \_\_\_\_\_

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**Responsible**

**Party Rep:** \_\_\_\_\_ **Date** \_\_\_\_\_  
(Name) (Agency) (Signature)

**State Rep:** \_\_\_\_\_ **Date** \_\_\_\_\_  
(Name) (Agency) (Signature)

**Federal Rep:** \_\_\_\_\_ **Date** \_\_\_\_\_  
(Dredge) (Name) (Agency) (Signature)

**Federal Rep:** \_\_\_\_\_ **Date** \_\_\_\_\_  
(Sediment) (Name) (Agency) (Signature)

**Data Entry:** \_\_\_\_\_ **Date** \_\_\_\_\_

Version 3  
2/15/2011

## OYSTER TRANSITION PLAN

### NRDA Oyster Intake Lab Form – Dredge Enumeration and Sample Generation

*One form should be used for each assigned site/grid cell.*

#### 1. Site Information

Cell Number (GCID) \_\_\_\_\_

Time of processing: \_\_\_\_\_ Date: \_\_\_\_\_

#### 2. Dredge Sampling:

*Dredge 1*

SAMPLE ID: \_\_\_\_\_

Abundance	< 25 mm SH (Spat)	26 – 74 mm SH (Seed)	> 75 mm (market size)
Live Oysters (Total)			
Dead Oysters (Boxes)			
Retained for CT sample	-----		
Retained for GD sample	-----		
Other Species (List below)			
Oyster drills:			

*Dredge 2*

SAMPLE ID: \_\_\_\_\_

Abundance	< 25 mm SH (Spat)	26 – 74 mm SH (Seed)	> 75 mm (market size)
Live Oysters (Total)			
Dead Oysters (Boxes)			
Retained for CT sample	-----		
Retained for GD sample	-----		
Other Species (List below)			
Oyster drills:			

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**Dredge 3**

**SAMPLE ID:** \_\_\_\_\_

Abundance	< 25 mm SH (Spat)	26 – 74 mm SH (Seed)	> 75 mm (market size)
Live Oysters (Total)			
Dead Oysters (Boxes)			
Retained for CT sample	-----		
Retained for GD sample	-----		
Other Species (List below)			
Oyster drills:			

**3. Additional Dredges:**

**Dredge 4 (If necessary)**

**SAMPLE ID:** \_\_\_\_\_

**# of market Oysters collected:** \_\_\_\_\_ **# of seed Oysters collected:** \_\_\_\_\_

**Dredge 5 (If necessary)**

**SAMPLE ID:** \_\_\_\_\_

**# of market Oysters collected:** \_\_\_\_\_ **# of seed Oysters collected:** \_\_\_\_\_

**Dredge 6 (If necessary)**

**SAMPLE ID:** \_\_\_\_\_

**# of market Oysters collected:** \_\_\_\_\_ **# of seed Oysters collected:** \_\_\_\_\_

**Dredge 7 (If necessary)**

**SAMPLE ID:** \_\_\_\_\_

**# of market Oysters collected:** \_\_\_\_\_ **# of seed Oysters collected:** \_\_\_\_\_

**Dredge 8 (If necessary)**

**SAMPLE ID:** \_\_\_\_\_

**# of market Oysters collected:** \_\_\_\_\_ **# of seed Oysters collected:** \_\_\_\_\_

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#### **4. Sample Generation:**

##### ***Contaminant Sample***

Contaminant Sample ID: \_\_\_\_\_

Total Number of market Oysters: \_\_\_\_\_

Total Number of seed Oysters: \_\_\_\_\_

*(Oysters contributed from individual dredges)*

Dredge 1 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 2 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 3 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 4 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 5 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 6 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 7 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 8 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

##### ***Gonad/Disease Sample***

Gonad/Disease Sample ID: \_\_\_\_\_

Total Number of market Oysters: \_\_\_\_\_

Total Number of seed Oysters: \_\_\_\_\_

*(Oysters contributed from individual dredges)*

Dredge 1 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 2 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 3 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 4 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 5 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 6 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 7 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

Dredge 8 Sample ID: \_\_\_\_\_ # Market: \_\_\_\_\_ # Seed: \_\_\_\_\_

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Lab Team Leader: \_\_\_\_\_  
(Name) (Agency) (Signature) (Date)

Analyzed By: \_\_\_\_\_  
(Name) (Agency) (Signature) (Date)

Data Entry: \_\_\_\_\_  
(Name) (Agency) (Signature) (Date)

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